

IN THE CLAIMS:

Please amend the claims as follows:

Claims 1-4. (Cancelled)

5. (Currently amended) An apparatus comprising:

a die;

a package coupled to the die; and

an interposer coupled to the package and formed from a circuit board substrate, by which the apparatus can be electrically coupled to a circuit board, the interposer comprising

a first surface on which are disposed a first plurality of contacts through which the interposer is coupled to the package,

a second surface on which are disposed a second plurality of contacts to couple the interposer to the circuit board, and

a plurality of conductive paths between the first surface and the second surface, each of the conductive paths formed by a solid conductive column through the substrate, wherein each of the conductive columns has a composition of tin (Sn) and lead (Pb), comprising at least 81% lead (Pb);

a first plurality of grooves in the first surface between the conductive columns, and

a second plurality of grooves in the first surface between the conductive columns, perpendicular to the first plurality of grooves.

Claims 6-13 (Cancelled)

14. (Previously presented) An interposer to couple an electronic component package to a circuit board, the interposer comprising a plurality of beams coupled to each other, each of the beams comprising

a circuit board substrate having a first surface and a second surface;

a first plurality of conductive contacts disposed on the first surface to be coupled to the electronic component package;

a second plurality of conductive contacts disposed on the second surface to be coupled to the circuit board; and

a plurality of conductive paths, each separately connecting one of the first plurality of conductive contacts with one of the second plurality of conductive contacts, wherein each of the conductive paths comprises a conductive coating formed in a recessed channel in an edge of the substrate, the edge perpendicular to the first surface and the second surface, wherein each of the recessed channels is a portion of a through hole.

15. (Previously presented) An interposer as recited in claim 14, wherein the plurality of beams are coupled together to form an array of conductive paths to couple the electronic component package to the circuit board.

Claims 16-22 (Cancelled)

23. (Previously presented) A method of coupling an electronic circuit package to a circuit board, the method comprising:

fixedly coupling a plurality of electrical contacts on a first surface of an interposer to the electronic circuit package, the interposer formed from a plurality of beams coupled to each other, each of the beams comprising a circuit board substrate having the first surface, a second surface, and a plurality of conductive paths from the first surface to the second surface; and

fixedly coupling a plurality of electrical contacts on the second surface of each of the beams to the circuit board.

24. (Original) A method as recited in claim 23, wherein the electronic circuit package includes a semiconductor die.

25. (Original) A method as recited in claim 24, wherein the circuit board is a motherboard.

Claims 26-27 (Cancelled)

28. (Currently amended) An interposer as recited in claim 23 29, wherein each of the recessed channels is a portion of a through hole.

29. (Previously presented) An interposer comprising:

a circuit board substrate member having a first surface and a second surface parallel to each other, the substrate further having an edge perpendicular to the first

surface and the second surface;
a first plurality of conductive contact pads on the first surface;
a second plurality of conductive contact pads on the second surface; and
a plurality of recessed channels in the edge of the substrate member, extending
from the first surface to the second surface, each of the recessed channels having a
conductive material therein to form a conductive path between one of the first plurality
of contact pads and one of the second plurality of contact pads; and
a first plurality of grooves in the first surface between the contact pads on the
first surface.

30. (Original) An interposer as recited in claim 29, further comprising a second
plurality of grooves in the second surface between the contact pads on the second
surface.

31. (Previously presented) A device to couple an electronic component package to a
circuit board, the device comprising a plurality of interposers coupled to each other,
each being an interposer as recited in claim 29.

32. (Original) An interposer as recited in claim 31, wherein the plurality of interposers
are coupled together to form an array of conductive paths to couple the electronic
component package to the circuit board.

Claims 33-41. (Cancelled)

42. (Currently amended) An interposer as recited in claim 41 43, further comprising a second plurality of grooves in the second surface between the conductive columns on the second surface.

43. (Currently amended) An interposer comprising:

a circuit board substrate having a first surface and a second surface parallel to each other;

a first plurality of conductive contact pads on the first surface;

a second plurality of conductive contact pads on the second surface; ~~and~~

a plurality of solid conductive columns through the substrate perpendicular to the first surface and the second surface, each in electrical contact with one of the first plurality of contact pads and one of the second plurality of contact pads, ~~wherein the conductive columns are formed from an alloy of tin (Sn) and lead (Pb), comprising at least 81% lead (Pb); and~~

a first plurality of grooves in the first surface between the conductive columns on the first surface.

Claims 44-49 (Cancelled)

50. (Previously presented) An apparatus as recited in claim 5, wherein the interposer is to be fixedly coupled to the circuit board.

51. (Previously presented) An interposer as recited in claim 29, wherein the first plurality of conductive contact pads and the second plurality of conductive contact pads are spaced at an equal pitch.

52. (Cancelled)

53. (Previously presented) An apparatus as recited in claim 5, further comprising:
a third plurality of grooves in the second surface between the conductive columns; and
a fourth plurality of grooves in the second surface between the conductive columns, perpendicular to the third plurality of grooves.

54. (Previously presented) An interposer as recited in claim 14, further comprising a first plurality of grooves in the first surface between the first plurality of conductive contacts.

55. (Previously presented) An interposer as recited in claim 54, further comprising a second plurality of grooves in the second surface between the second plurality of conductive contacts, parallel to the first plurality of grooves.

56. (Previously presented) An interposer as recited in claim'42, further comprising:
a third plurality of grooves in the first surface between the conductive columns, perpendicular to the first plurality of grooves; and
a fourth plurality of grooves in the second surface between the conductive

columns, perpendicular to the second plurality of grooves.

57. (New) An apparatus as recited in claim 5, wherein each of the conductive columns has a composition of tin (Sn) and lead (Pb), comprising at least 81% lead (Pb).

58. (New) An interposer as recited in claim 43, wherein the conductive columns are formed from an alloy of tin (Sn) and lead (Pb), comprising at least 81% lead (Pb).